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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,371	02/09/2004	Ivan Tashev	MCS-063-03 (304217.01)	9761
27662	7590	07/03/2007	EXAMINER	
MICROSOFT CORPORATION			LEE, PING	
C/O LYON & HARR, LLP			ART UNIT	PAPER NUMBER
300 ESPLANADE DRIVE			2615	
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OXNARD, CA 93036				
MAIL DATE		DELIVERY MODE		
07/03/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/775,371	TASHEV ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Ping Lee	2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 03 March 2007.  
 2a) This action is **FINAL**.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-30 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-5, 7-27, 29 and 30 is/are rejected.  
 7) Claim(s) 6 and 28 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 7, 8, 14-18, 21, 22, 26, 27, 29 and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Arndt et al (hereafter Arndt) (US006954535B1).

Regarding claims 1, 8, 14, 16, 17, 24, 26, 29 and 30, Arndt discloses a microphone array (1), comprising:

- an array of at least one microphone (2, 3);
- a memory (21) contained within the array, said memory including parametric information which defines operational characteristics and configuration of the array (col. 4, lines 16-19);
- an array interface for connecting the array to an external computing device (9);

and

wherein the parametric information included in the memory is reported to the external computing device via the array interface upon connection of the array to the external computing device. The parametric information stored in the memory is being reported to the external computing device through the filter outputs.

Regarding claim 2, Arndt shows that memory is a rewritable-type memory.

Regarding claims 7, 18 and 27, the claimed “audio capture characteristics of the microphone array” reads on different directional characteristics as disclosed in Arndt.

Regarding claim 15, Arndt shows the magnitude and phase gains for each microphone in the array is automatically determined (col. 2, lines 55-58).

Regarding claim 21, by sitting in a testing room, the claimed “a manual user calibration request” is inherently performed.

Regarding claim 22, by sitting in a testing room with the unit 9 control the measurement, the claimed “an external calibration request” is inherently performed.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 9, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt in view of Kanazawa et al (hereafter Kanazawa) (US006032115A).

Regarding claim 9, Arndt fails to disclose whether the measuring and evaluation unit processing signal in analog or digital domain. One skilled in the art would be motivated to search any related art that performs the calculation efficiently. Kanazawa teaches using A/D converter to convert the microphone signal and performs frequency analysis afterward. Thus, it would have been obvious to one of ordinary skill in the art to modify Arndt of by performing the signal analysis method as taught in Kanazawa in order to improve the frequency response of the microphone array.

Regarding claims 19 and 20, Kanazawa teaches the separate audio signal for each microphone (step s2, speech data #a, #b)

6. Claims 13 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt in view of Hsieh et al (hereafter Hsieh) (US 20050254673A1).

Regarding claims 13 and 23, Arndt fails to show the microphones are MEMS-type microphones. Arndt teaches a general hearing aid with a general microphone array. One skilled in the art would have expected that any specific type of microphone that could be used in Arndt's hearing aid without generating any unexpected result. Hsieh teaches a MEMS-type of microphone and suggests that it could be used for hearing aid. Thus, it would have been obvious to one of ordinary skill in the art to

modify Arndt in view of Hsieh by using MEMS-type microphone in order to improve the microphone performance.

7. Claims 3-5, 10-12 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arndt in view of Csermak et al (hereafter Csermak) (US 20040202333A1).

Regarding claims 3, 4, 10-12 and 25, Arndt fails to show the array comprising a self-calibration system. Arndt teaches that the calibration is performed external from the microphone array in a testing facility. However, Csermak teaches that a hearing aid should have self-diagnostics system for performing evaluation at any time. Thus, it would have been obvious to one of ordinary skill in the art to modify Arndt in view of Csermak by performing self-evaluation in order to identify a potential microphones malfunction without requiring the professional help.

Regarding claim 5, although not explicitly shown, preamplifier is inherently included and coupled to the microphone to provide signal in proper level.

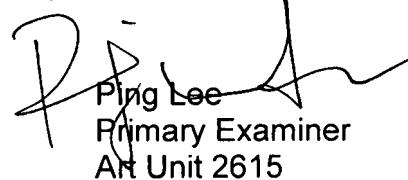
#### ***Allowable Subject Matter***

8. Claims 6 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ping Lee  
Primary Examiner  
Art Unit 2615

pwl